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ABSTRACT

Bilingual and monolingual children were presented with experimental conditions where response mode and semantic information was varied. Forty children, 20 in each language-type group, responded in the present progressive and the past tenses to a series of colored drawings of simple activities. Half of the subjects responded to the task under conditions of verbal cues that made specific references to the time the activity took place. The other half responded to the task without the presence of the cues. Results revealed highly significant differences on tense performance, a finding attributed to the structural and semantic differences of the two tenses involved. Bilingual and monolingual children differed significantly in the way they utilized the verbal cues, suggesting that production does not represent the bilingual child's competence in the second language. (Author/CLK)

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LANGUAGE COMPREHENSION, CUE UTILIZATION AND TENSE PERFORMANCE OF BILINGUAL AND MONOLINGUAL FIVE YEAR OLD CHILDREN

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The relationship of linguistic form (i.e., morphological and syntactic rules) and the non-linguistic referents of such forms (content or semantics) is of fundamental significance in understanding the nature of language functioning. Specifically, the question asked can be phrased as follows: When a child uses a linguistic rule, let us say the past tense marker, does he/she have the knowledge of the cognitive presuppositions for the past tense as well, namely the knowledge that the referred action must have been completed? Is such information necessary and present in a child that uses the appropriate linguistic rule? Such questions although of primary interest to psychologists are very purely understood at present and relate to the age old question of the relationship between language and thought (e.g., Piaget, 1955; Vygotsky, 1962; Werner and Kaplan, 1963; Sinclair De Zuart, 1969).

The present study is an attempt to explore select aspects of the relationship between language and cognition by comparing performance on the present progressive and past tenses of two different groups, bilingual and monolingual five year old children. It has been repeatedly suggested in the literature that understanding the bilingual child's linguistic abilities may facilitate our understanding of language and cognition in general (e.g., Leopold, 1939; Kolers, 1968; Bain, 1974 and 1976). The specific question that this study deals with may be phrased as follows: When bilingual children acquire a given linguistic form, let us say the past tense marker, do they have to comprehend it first? Or, when they do not produce a form does it mean that they have not understood the cognitive presuppositions for that form? Bilingual children of immigrant families are a good sample for answers to such questions in as much

as they are in the process of acquiring new linguistic forms in a second language, just like a very young child is in his/her first language.

The objective of the present study was to investigate performance of young children on tasks where linguistic and non-linguistic factors were varied. Specifically, transformational complexity, context and Bilingualism were manipulated by the present experimental conditions.

Transformational complexity was examined by presenting children with grammatical rules that differ on this variable. Such appears to be the case of the present progressive and the past tense markers. The present progressive requires two sets of transformations, one set on the auxiliary verb to be and the other on the main verb by adding the -ing form. The past tense requires one set of transformations on the main verb only resulting in the addition of the -ed morpheme. (See Brown 1973).

Cognitively these tenses present a different case. The present progressive refers to an action currently taking place, an event that is easier for a young child to conceptualize than an action that took place in the past. The past tense which makes reference to a past event relies heavier on memory, therefore cognitively it presents the child with a more abstract task than the present progressive. Thus, the primary question asked in this study was whether or not differences in the structure (transformational complexity) and the level of abstraction (e.g., present events vs past events) would effect performance, and in what way.

Context was manipulated by presenting subjects with experimental tasks where extra-linguistic information was varied. Two experimental tasks were designed for this purpose. The Perceptually Concrete task was designed to present the subject with meaningful perceptual information about the appropriate use of the tense marker. The Abstract task provided no meaningful paralinguistic information about tense use. It was designed to give the subject the opportunity to rely on abstract linguistic information for performance.

In addition, a Linguistic Cue condition was introduced in both tasks that provided a verbal reference to the time (present or past) when the action takes place. Comprehension and Production of these tense markers were also studied under certain experimental conditions. The hypothesis advanced here was that the patterns of cue utilization would reveal the subject's reliance on the additional semantic information. It was expected that bilingual subjects would rely heavily on the verbal cues, as they would be looking for assistance in interpreting the linguistic situation.

Methods and Materials

Subjects

The subjects were 40 kindergarten children, 20 Greek/English bilinguals and 20 English monolinguals, ranging in age from 5.0 to 6.0 years with a median age of 5.46 years. There was an equal number of males and females in the sample. All bilingual children were considered fluent in English by their teachers. However, it was ascertained in each case that the language spoken at home was Greek. Both groups of children were attending schools in the same New York Metropolitan area and came from working class families.

Experimental Tasks

Perceptually Concrete Task

The Perceptually Concrete task consisted of brightly colored drawings on 8 in. x 5 in. cards of either a boy or a girl performing simple activities. Eight verbs (tie, brush, kiss, drink, paint, pick, jump, ring)[2] were selected on the bases of familiarity to young children and the easiness with which they could be pictorially represented. The drawings represented the following activities: A boy tying his shoes, a boy brushing his teeth, a boy drinking a glass of milk, a girl painting a picture, a girl picking up flowers, a girl jumping rope, and a girl ringing a school bell.

The complete task consisted of eight arrays of visual stimuli. Each stimulus array consisted of three cards. One card showed the activity in process, the other card the activity completed and a third card showed an unrelated activity (the "odd" stimulus). The stimulus array for the verb to tie will illustrate the type of stimuli used: One stimulus card shows a boy leaning down tying his shoe, the second card shows the same boy standing up looking proudly toward his shoe shown as tied, and the odd stimulus shows the same boy bouncing a ball.

The stimulus arrays were shown to a group of college age adults to test whether or not each card would spontaneously produce in the adult the appropriate present progressive and past tense. A card that did not meet this criterion was replaced by another drawing.

Abstract Task

The Abstract Task was similar to a task first described by Berco (1958) and used to solicit morphological rules from children. In this study the task was modified to include a sample of nonsense verbs larger than the one used by Berco to solicit the present progressive and past tense morphemes. Eight nonsense verbs vie, kush, biss, plink, rick, laint, gump and bing were included. The phonological endings of these verbs were similar to corresponding endings of the meaningful verbs used in the Perceptually Concrete task. For example, vie was considered to be phonologically comparable to the verb tie, gump to the verb jump, etc. This phonological matching method was used to minimize phonological differences between meaningful and nonsense verbs.

The corresponding activities of the nonsense verbs were also unusual. Thus the picture associated with the verb vie shows a boy throwing a disc; plink was associated with the picture of a girl balancing a pitcher on her head; the picture for biss shows a boy rolling a wheel; rick shows a boy jumping over a large circle, laint was associated with the picture of a girl balancing a ball on her nose; kush with a boy looking at a ball in the air that he is trying to catch; the picture for gump shows a boy hitting a round object handing from the ceiling and bing shows a boy jumping over a box.

The use of unusual activities paired with nonsense verbs aimed at minimizing the availability of meaningful paralinguistic information related to the production of the present progressive and past tense morphemes. Consequently, the child is expected to rely on abstract linguistic rule information available to him at the time of performance.

Procedure

Subjects were tested individually by a female experimenter. One half of the subjects was assigned to the Verbal Cue condition and the other half to the non-verbal cue condition. Two modes of responding, Comprehension and Production, were required for the Perceptually Concrete Task and only the Production mode for the Abstract Task.

Perceptually Concrete Task

General Instructions

Shortly after the subject was brought to the experimental room the experimenter introduced the task as follows: "I am going to show you pictures of a boy named Johnny and a girl named Mary. They are doing many things. Sometimes you will tell me what they are doing and sometimes I will tell you what they are doing and you will just show me the right picture."

Comprehension Response Mode

Following general instructions a sample stimulus array was presented to the subject (the verb climb was illustrated with the odd picture showing the boy riding a bicycle). The experimenter said: "I am going to tell you something that Johnny is doing in these pictures and you will point to the right picture." Immediately following this statement the experimenter said, "Johnny is climbing the stairs" for comprehension of the present progressive or the phrase "Johnny climbed the stairs" for the past tense. The experimenter waited for the subject's response and corrected him/her if necessary, before introducing the second sentence.

Following performance on the sample stimulus array the eight experimental arrays were presented twice, once for the present progressive and again for the past tense. To avoid any order effects the presentation of present progressive and past tense items was random. The stimulus arrays were reshuffled every time they were used to avoid possible position effects.

Produc tion Response Mode

The instructions for the production mode were as follows: "I am going to point to pictures of Johnny and Mary and you will tell me what they are doing." The sample stimulus array was presented and the experimenter said: (pointing to the picture for the present progressive,) "Tell me what Johnny is doing in this picture." For the drawing representing the past tense the verbal stimulus was, "Tell me what Johnny did in this picture." If the subject used the present tense rather than the present progressive the experimenter corrected the subject and stressed that he/she was expected to use that form. Similarly if the child used only the ing form without the auxiliary, the sentence was repeated and the experimenter emphasized that the "whole sentence" was expected.

Verbal Cue Conditions

The verbal cues were phrases that made specific reference to the time the activity takes place. Thus the verbal cue for the present progressive was the phrase "right now" and for the past tense the phrase "already." A subject in the verbal cue condition of the comprehension mode heard the phrases "Johnny is (tying his shoes)right now" and "Johnny (tied his shoes) already" for the present progressive and past tenses respectively. The verbal stimulus phrases for the Production response mode under the cue condition were "Tell me what Johnny is doing right now" or "Tell me what Johnny did already." The verbal cues were omitted for the non-verbal cue condition.

Abstract Task

Following performance on the Perceptually Concrete Task the Abstract Task was administered. The only mode of response for this task was production. Again half the subjects were assigned to the verbal cue condition and the other half to the non-verbal cue. The same verbal cues used for the Perceptually Concrete task were also used for the Abstract task.

The procedure for this task was quite similar to the one introduced by Berco (1958). The example for the verb vie will illustrate the procedure

used in this study. "This is a picture of a boy Johnny, who knows how to vie. He does this every day. In this picture Johnny _____ _____." The subject's response was to complete the sentence. For the past tense the verbal stimulus was as follows: "This is a picture of a boy Johnny who knows how to vie. He does this every day. Yesterday he _____." The phrases "right now" and "already" were appropriately introduced for the verbal cue condition.

Experimental Design

Each Language-type group (i.e., monolingual and Bilingual subjects) were assigned to either a Verbal Cue or a Non-Verbal Cue condition. There were two types of experimental tasks, the Perceptually Concrete and the Abstract Task. Two modes of responding, Comprehension and Production. Subjects were required to respond to both the present progressive and the past tense. Consequently the experimental design was a 2 x 2 x 2 x 2 (Language-Type x Cue x Tense x Mode) factorial with two between subject variables, Tense and Mode of responding. The nature of the Abstract task required only one mode of response, Production; therefore, the analysis of variance for that task was a 2 x 2 x 2 (Language-Type x Cue x Tense) factorial with only one within subjects factor, Tense, and Language-Type and Verbal Cue as the between subjects factors.

Scoring

A correct response on the present progressive was the auxiliary + the ing form. This consideration was especially significant in the case of the youngest subjects in the sample who tended to respond with the -ing form along omitting the auxiliary. Such responses were considered incorrect. This observation is consistent with reports from Brown (1973), and Memuyk (1969) indicating that the auxiliary + the -ing form appeared much later than the -ing form alone. In fact in Brown's data (1973), in order of appearance the -ing form ranked 2.33 while the auxiliary _ the -ing form ranked 11.66 (p. 274). These differences concerning the order of appearance are attributed to differences in the transformational complexity of the constructions. Inasmuch as the transformational

complexity of the present progressive was one of the main issues in this study the use of both transformations (auxiliary + -ing form) was the only acceptable correct response.

On the past tense both the irregular forms and the overgeneralizations of the -ed morpheme were accepted as correct responses to the two irregular verbs (drink and bring) in the sample. This decision was partially based on previous reports on t. ~ issue. Berco (1958) Menuyk (1969) and Brown (1973) reported the appearance of irregular forms concurrently with regular forms. Furthermore, overgeneralizations of the -ed morpheme are taken as good indicators that the abstract linguistic rule for the past tense have been acquired. Consequently it was considered especially appropriate for the objectives of the present study to include overgeneralizations of the -ed morpheme as correct responses.

Results

Perceptually Concrete Task

Table 1 shows the mean performance of the experimental groups.

Table 1 about here

Results of the analysis revealed a highly significant main effect of the Cue factor ($F_{1,36} = 5.36$, $p < .01$), suggesting a better overall performance on the Cue than on the No-Cue condition. A significant main effect of the Tense factor shows that, in general, subjects made fewer errors on the present progressive than on the past tense ($F_{1,36} = 53.52$, $p < .01$).

The above findings were further clarified by a significant Cue x Tense interaction ($F_{1,36} = 6.49$, $p < .02$). The Tukey test for post hoc comparisons revealed significant mean differences under the Cue and No-Cue conditions for the past tense only ($q_{1,40} = 2.20$, $p < .02$). Apparently subjects utilized the verbal cue more readily on the past tense than on the present progressive.

Performance differences between monolingual and bilingual subjects are suggested by a significant Language-type x Tense interaction ($F_{1.36} = 4.08$, $p < .02$). Post hoc comparisons reveal that on both tenses bilinguals made more errors than monolinguals ($q_{1,40} = 8.98$, $p < .01$ for differences on the present progressive; $q_{1,40} = 6.90$, $p < .01$ for differences on the past tense).

Additional clarification on the performance differences of bilingual and monolingual subjects was provided by a complex interaction of Language-type x Cue x Tense x Mode of response ($F_{1,36} = 4.08$, $p < .02$).

Post hoc comparisons revealed significant differences between the past tense means, under cue and no-cue conditions for the comprehension mode ($q_{1,40} = 2.85$, $p < .05$) and production ($q_{1,40} = 6.42$, $p < .01$) for monolingual subjects. As Table 1 shows these differences are attributed to a significant drop in errors under the cue condition. For bilingual subjects on the other hand the only significant difference was between the comprehension means ($q_{1,40} = 4.52$, $p < .01$). The differences on Production did not reach statistical significance.

Abstract Task

Table 2 shows the mean performance of each language group. The 4 x 2 x 2 (Language Type x Cue x Tense) analysis of variance on the errors measure yielded a significant main effect of Language Type ($F_{1,36} = 12.64$, $p < .01$) and a main effect of the Tense factor ($F_{1,36} = 7.90$, $p < .01$).

The effect of the Language-Type factor was attributed to a better overall performance of the monolingual subjects. The main effect of the Tense factor was attributed to a better overall performance on the past tense. This pattern of results was exactly the reverse from the findings on the perceptually concrete task where subjects made fewer errors on the present progressive than on the past tense.

Discussion

Several patterns of results emerged from this study. Bilingual five year old children made more errors than their monolingual peers both on the Perceptually concrete and the Abstract tasks. In addition each group of subjects utilized the verbal cue somewhat differently, Under the Cue condition monolingual children's performance improved both on comprehension and production. On the other hand, bilingual children's performance improved only on comprehension. The additional information that the cue provided did not significantly effect the bilingual child's linguistic production. Flavell and his coworkers (i.e., Keeney, Cannizo and Flavell, 1967; Flavell 1970) in the context of studies in verbal mediation, have called our attention to the existence of mediational deficiency and that of production deficiency as two distinct processes. The former refers to a lack of a verbal mediator in the young child and the latter to an inability to verbally produce it. The results in this study suggest that possibly a similar production deficiency may account for the bilingual child's non-utilization of the verbal cue on production.

Other findings in this study relate to differences in tense performance and cue utilization. On the Perceptually Concrete task both bilingual and monolingual subjects made more errors on the past tense than on the present progressive. On the Abstract task the pattern was reversed as subjects made fewer errors on the past tense. Similar results concerning tense performance have been reported elsewhere (Bozinou, 1976). A complex interaction of structural complexity (i.e., number of transformations of the linguistic form) and context (i.e., perceptual meaning of the performance situation) is suggested by the present results. One possibility is that under the experimental conditions of the Perceptually Concrete task where subjects are presented with meaningful context they find easier the language form that expresses a concrete concept regardless of the structural complexity of that form.

On the other hand, the conditions of the Abstract task structural complexity appears to be a primary determinant for performance; thus subjects made more errors on the more complex structure, namely the present progressive.

We observe therefore a complex inter-relationship of structural complexity, context and level of abstraction of the concept. It is suggested here that neither factor is the determining one for performance but the interdependence of the three. Any of these factors may become more significant than the others in a given performance situation. Further research is needed however in order to gain better understanding of the inter-relationship of linguistic structure and context.

Bibliography

Bain, B.C. Bilingualism and cognition. In S.Cary (Ed.), Bilingualism, biculturalism, and education. Edmonton, University of Alberta Press, 1974.

_____ Verbal regulation of cognitive processes: A replication of Luria's procedures with bilingual and unilingual infants. Child Development, 1976. 47, 543-546.

Bozinou, E., Young children's use of the present progressive and past tense markers under two levels of abstraction and cue conditions. Paper presented at the Annual Meeting of the American Educational Research Association, 1976.

Flavell, J.H. Developmental studies in mediated memory. I.H.W.Reese and L.P.Lipsitt (Eds.), Advances in child development and behavior. Vol. 5. New York, Academic Press, 1970, pp. 191-211.

Keeney, J.J., Cannizzo S.R., & Flavell, J.H. Spontaneously and induced verbal rehearsal in a recall task. Child Development, 1967, 38, 953-966.

Kolers, P. Bilingualism and information processing. Scientific American, March 1968, 78-85.

Leopold, W. Speech development of a bilingual child. Evanston, Ill.: Northwestern University Press, 1949.

Menyuk, Paula Sentences Children Use, Cambridge, Mass.: M.I.T. Press, 1969.

Piaget, Jean, The language and thought of the child, Cleveland, Ohio: World Publishing Co., 1955.

Sinclair-De Zuart, H. Developmental psycholinguistics. In D. Elkind and J.H.Flavell (Eds.) Studies in cognitive development: Essays in honor of Jean Piaget, New York: Oxford University Press, 1969.

Vygotsky, L.S. Thought and Language, (first edition 1934), Cambridge, Mass.: M.I.T. Press, 1962.

Werner and Kaplan, B. Symbol formation: An organismic developmental approach to language and the expression of thought, New York: John Wiley, 1963.

TABLE 1

Mean Errors of Bilingual and Monolingual Five Year Olds on the Present Progressive and Past Tense, Under Two Cue Conditions and Modes of Response

	Monolingual				Bilingual			
	No Cue		Cue		No Cue		Cue	
	Compre-hension	Production	Compre-hension	Production	Compre-hension	Production	Compre-hension	Production
Present Progressive	.1	0	0	.2	.2	1.6	.2	1.0
Past Tense	2.3	4.4	1.1	1.7	3.2	4.0	1.3	3.1

TABLE 2

Mean errors of Bilingual and Monolingual five year olds on the present progressive and past tenses, under two cue conditions on the Abstract task

	Monolingual		Bilingual	
	No Cue	Cue	No Cue	Cue
present progressive	3.6	3.4	7.2	6.4
past tense	3.1	2.3	6.4	5.6